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Seminar

**ON THE PROBABILITY
OF CAUSATION FOR QUERYING
THE CAUSE OF AN EFFECT,
AND ITS FUNDAMENTAL
CONDITIONS**

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ON THE PROBABILITY OF CAUSATION FOR QUERYING THE CAUSE OF AN EFFECT, AND ITS FUNDAMENTAL CONDITIONS

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Science is largely concerned with understanding the "effects of causes", while Law is more concerned with "causes of effects". While effects of causes can be addressed using experimental design and statistical analysis, it is less clear how to incorporate statistical or epidemiological evidence into causes of effects reasoning. The focus of the causes of effects question is the following: how can one use epidemiological data, collected on a population, to assign a "probability of causation" in an individual case? This kind of query is common in a Court of Law when we want to assign legal responsibility for an adverse outcome: when the probability of causation exceeds one half, a civil case might be regarded as proven on the "balance of probabilities". Even with the best possible experimental data, it is not possible to compute precisely the probability of causation. However we can provide information on it in the form of bounds, so long as some fundamental conditions are satisfied. In this talk I will present these conditions in detail, and consider how to determine the subset of the experimental data that best satisfies them.